Chapter 6:

Natural Selection and Evolution: Do Darwin's Finches Prove Evolution?

Roger Patterson



Why is this Chapter Important?

s you open the typical biology textbook, you will be confronted with an evolutionary view of the world on almost every page. "Evolutionary processes" supposedly turn a single cell floating in an imaginary primordial ooze into a zebra fish or a zebra, and require billions of years to do so. Without these billions of years, natural selection and mutations would not have enough time to "work together" to bring about wholesale creature design changes—assuming they could do that even given an eternity. To accept the evolutionary development of life is to reject the clear meaning of God's description of the creation of life in Genesis 1. In this chapter you will learn of the differences between what evolutionists claim time and chance can accomplish and what we really know to be true from actual scientific studies and the description of God's creative acts in the Bible. Contrary to textbook assertions, you and I are far more than highly evolved animals, but special creations of God made in His image.

If you were to ask the typical person to explain biological evolution, the ideas of natural selection and mutations would surely be a part of their description. But is natural selection really able to accomplish what evolution needs it to accomplish? Can mutations account for the change of an amoeba into a horse? Has any of this actually been observed, or is there a lot of speculation involved? These are the kinds of questions that need to be answered as we sort through the claims found in textbooks and various video programs designed to teach the evolutionary view of how life came to exist on this planet.

The Naturalistic Worldview

Whenever we consider complex ideas like biological evolution, there are many assumptions that have to be made, or at least accepted, for the sake of discussion. The typical person who believes in an evolutionary process embraces a chain of assumptions—whether they realize it or not.

The explanations you will find in textbooks, various teaching videos, and hear in the classroom are almost always based on the worldview called naturalism. Those with a naturalistic worldview believe that everything we see in the universe can be explained by natural processes. To them, everything is a result of the laws of nature acting over time to produce what we see. Humans are simply the result of gravity, time, thermodynamics, natural selection, mutations, and chemical reactions. To a naturalist, there is no need for miracles or a god or anything we can't see and measure to produce the universe as we see it today—including every creature alive or extinct. In fact, the textbook you use might just include a statement like that in the early chapters that talk about what science is. In truth, we must assume uniformity of natural laws in order to achieve scientific discoveries about how things work. However, we must not assume that natural laws are all that ever existed, for, as discussed in the introduction, those very laws had their origin in a God entirely apart from nature.

A famous evolutionist, Dr. Richard Dawkins, admits that there are many elements of the natural world that look like they were designed. But he rejects the idea that there was a designer. Dawkins has said, "The illusion of purpose is so powerful that biologists themselves use the assumption of good design as a working tool"139 and many other similar statements. When was the last time you saw a building or a watch and thought, "You know, I bet that just happened as a result of the random interactions of various natural laws?" Never. Take a look at your hand and flex your fingers. Move your eyes quickly around the room and consider how fast your eyes focus and take in new information. Next consider your hearing, and how air impulses from sound waves are converted into electrical impulses by your brain then interpreted as speech, almost in "real time." Now consider your whole body working together. Could an engineer design such an intricate machine? And could even the best of human engineers build it to repair and reproduce itself? Not a chance.

God has designed each of the kinds of living things that live on this planet. They did not arise from random events and natural laws. In order for those laws of nature to exist, there must have been a supreme Lawmaker, and He has told us in the Bible how He made all creatures. These creatures were not accidents. God purposefully designed each one in a supernatural act of creation. Every kind of creature was created by the powerful command of Jesus Christ (John 1:3; Colossians 1:16–17). Naturalism cannot offer a satisfactory explanation for how even a single-celled bacterium could have arrived on this planet without a designer. After all, the very laws of nature, such as diffusion and decay, tear away at life. Only the high-tech, ultraminiaturized programs and

tools within living cells constantly battle against diffusion, decay, and other life-unfriendly "natural" laws.

Formula for Life

If evolution could be written as a formula, its simplest form would be Natural Selection + Mutations (changed to the genetic code) + Time = Evolution. But let's examine this idea a bit more carefully. For evolution to be a valid scientific theory, it has to be able to explain how the first life reproduced with variety so that future generations would be able to change into new kinds of organisms. Supposedly a bacterium changed into an amoeba, which changed into a sponge, which changed into a fish, which changed into a reptile, which changed into a human—and every other life form we see today. How scientific is this fantastic story?

All life has information inside of it encoded in its DNA. The DNA contains the genetic building and maintenance instructions for all of the parts of an organism. Plants can't make ears (other than corn!) because they don't have the right sequence of DNA instruction to produce ears. So if animals and plants have some common ancestor, at some point the information to make ears had to be added to the genes of some animal. So how did that extra information get there?

In order to exclude God from their thinking, most evolutionists must assume that information initially comes from a natural process in the first place. Otherwise, the first living cell would never have been able to make itself, let alone duplicate itself, without a miracle. This is one of the major hurdles in the hypothesis of chemical evolution—the origin of the first life. But let's assume that information in the DNA was present. If the DNA of an imaginary first organism was simply copied, evolution couldn't move forward in gaining new instructions because no differences would arise in future

generations. The gene pool—all of the available genes in a population—would be stagnant.

Mutations

Enter mutations! If there were occasional mistakes in copying the information in the DNA, then differences could arise in future generations. The gene pool would have variety and slightly different organisms could be produced. Another way to introduce variety into the gene pool is through sexual reproduction, where each parent contributes half of the genetic information in its offspring, with different coding combinations possible. However, these processes occur according to very specific cellular and whole organism instructions. Where did those precise instructions come from?

DNA is made up of two molecular chains loosely bonded together. Each chain has a specific sequence of four chemical bases that pair up in specific ways. Adenine always bonds to Thymine, and Guanine always bonds to Cytosine. The DNA sequence is often represented by a series of As, Ts, Cs, and Gs. A particular strand of DNA might have the sequence ATTCGCATAATGAACCGTC. The sequence of letters serves as a template to produce proteins and other cellular products. The code is read in sets of three: ATT.CGC.ATA.ATG.AAC. GTC in the string above. If one of the letters is incorrectly copied when a cell is reproducing itself, the new cell gains a "point mutation." Other forms of mutations can involve letters being inserted into the code or sections of the code being deleted. In each of these cases, the mutation can cause the cell to die or it may not have any immediate impact at all.

Mutations are a measurable, observable process in cells—part of observational science. Understanding how a mutation impacts a given cell is an important part of biology and has helped us understand many diseases. Mutations resemble copying errors, like when we miss a letter or punctuation

mark when we copy instructions from our teacher's marker board. An evolutionist takes these observable changes in cell's coding and tries to use them to explain how a bacterium could have changed into a bullfrog. This "origins exercise" involves assumptions. Evolutionary scientists try to make careful studies and perform experiments, but they start from the wrong place. They assume all life evolved from a single ancestor and then test their ideas to see if they are reasonable. In many cases, the explanations seem to make sense, but they leave God out of the picture and further investigation reveals how they violate scientific principles. Other chapters in this book give examples, revealing exciting discoveries that totally debunk evolutionary assertions that once sounded reasonable.

If we start from the Bible, we better understand why mutations do not add the coded instructions for life that evolution requires. Mutations are actually a product of the Fall of man described in Genesis 3. When Adam and Eve sinned against God, it brought death, disease, and the struggle for survival into the world. Mutations began to impact living things and cause disease. Mutations that cause cancer would never have been present before sin entered the world. In contrast, the evolutionary view teaches that mutations and the struggle for life are good because they brought about all of the life forms today. The Bible teaches us that God created the world as a perfect place and that sin has corrupted the world and that death and mutations are a part of that corruption. Our starting points always impact the way we understand the world, including mutations.

Natural Selection

Mutations produce variety—there is no doubt about that. As animals struggle to survive in the wild, some varieties will be able to survive better than others in certain environments. A mutation can lead to a variation of a trait that is beneficial in

one environment and harmful in another. Imagine a dog that had a mutation in the hair-producing genes that caused the dog to have long hair. If that dog lived in a cold climate, it might be better able to survive the cold winters and would be more likely to reproduce more offspring with long hair. If it lived in a desert environment, the long hair mutation might cause it to overheat and die. After several generations, that mutation would disappear from the gene pool (or turn dormant).

This is an overly simple explanation of the process of natural selection. However, even if it works the way we imagine it, natural selection can only select from trait variations available within each organism. Natural selection cannot cause new traits to come about any more than climate changes can write new computer codes. Mutations can and do alter pre-existing biological code, however.

Like mutations, evolutionists use natural selection to attempt to explain how organisms could have adapted to different environments and changed from fish into amphibians over the course of millions of years. But this origins science question involves many assumptions about the past that can never be verified. The mutations and natural selection processes from the past can never be observed, measured, or repeated. These two processes are supposed to be able to cause one kind of animal to change into another, but scientists have not witnessed this. In other words, mutations change existing traits within a reproducing kind, but they don't change one kind into another—a distinction that textbooks always ignore. Let's look at some of the classic examples and see if they really demonstrate that new information can be added to the genome through these processes.

Finch Beaks

If you open just about any biology textbook to the section on natural selection and evolution, you are almost

certain to find two examples that illustrate Natural Selection + Mutations + Time = Evolution. The first involves some very detailed research conducted over a long period of time on the Galapagos Islands. Peter and Rosemary Grant began their studies in the 1960s. They measured several aspects of the different finches living on the islands in the Pacific Ocean. One thing they noticed was that the shape of the finch beaks changed with different long-term climate changes.

In periods of drought, the island's seeds had thicker shells, so birds with thicker beaks were better able to crack the thick shells. Because they could eat, they survived and passed their genes on to their offspring. When the weather was wetter, the average finch beaks got more slender. They have clearly documented the process of changing variation in the beak sizes and shapes that matched prevailing weather patterns. If this was natural selection, was it also evolution in action? No, and here is why.

The size of the beaks goes up and down over the years, but it never permanently changes, and it certainly doesn't change into something other than a beak. In order for this to be "evolution in action," we should see some type of new physical feature or biological process. But all the Grants observed were skinny beaks changing into wide beaks and vice versa. Beaks remained beaks on birds that were previously birds. How is that evolution in action? Dr. John Morris sum it up this way:

The two scholars, Drs. Peter and Rosemary Grant, observed how, under drought conditions, birds with larger beaks were better adapted than others, thus their percentage increased. But this trend reversed when the cyclical conditions reversed. Furthermore, in times of drought, the normally separate species were observed to cross-breed. They are related after all. Darwin was right! [in this part of the matter]. But

is this really evolution? Even after the changes there is still the same array of beak sizes and shapes. This is variation and adaptation, not evolution. Actually, de-evolution has occurred; the observation is that there are larger groupings of species into what may be more reminiscent of the originally created kind. Creation agrees with Darwin's observations and with the newer observations, but evolution doesn't, even though the Grants interpret this as rapid evolution. Wonderful study—great data, wrong interpretation. 140

"Evolving" Bacteria

Another very popular example found in textbooks and news articles has to do with bacteria becoming resistant to antibiotics. Textbooks don't mention that what is happening in bacterial biology actually opposes what is needed for molecules-to-man evolution to happen.

Here is one common way that antibiotics interact with bacteria. When a bacterium absorbs an antibiotic, a bacterial enzyme breaks it down and turns it into a poison that kills the cell. Certain bacteria in a population may have a mutation that damages or diminishes the enzyme. When they absorb the antibiotic, they can't turn it into the poison so they survive—they are resistant to the antibiotic. So this is survival of the fittest, right? Well, yes—but the mutants are only more 'fit' when swimming in antibiotic. Normally, non-mutants grow much faster than the mutants because the enzyme in question actually performs a life-enhancing task when not used to convert antibiotics to poison. The bacteria that had a mutation survived in that environment. That is the formula for evolution, right?

Well, not exactly. In order for evolution to happen, there has to be an increase in information—new information has to be added to the genome. That is not what happens with these

bacteria. The mutations have caused a *loss* of information—the ability to make a proper enzyme. Losing information can't lead to a gain in information. Antibiotic resistance is a great example of natural selection—observational science—but it is not an example of evolution over millions of years—historical science—because it does not generate so much as a single new gene, let alone a new organism.

A Biblical Alternative

Biology books often show a "tree of life" when describing the history of life on Earth. Their evolutionary authors believe that a single organism evolved into different kinds of organisms, branching out into different forms through mutations and the process of natural selection (despite the hurdles described above). One branch of the tree might show a palm and another an orangutan. But no one has seen this tree in actual life—it is a drawing to explain an idea that they believe. It is an idea that follows a certain philosophy—the philosophy of naturalism—and into which they force the evidence.

If we begin our thinking from the Word of God, as we should if we are to honor Christ, we have a very different way of interpreting the evidence. God describes how He created living things in the first chapter of the Bible—Genesis 1. He tells us, as an eyewitness to His own work, that He created plants and animals according to their kinds to reproduce after their kinds. Genesis 1:11 makes this clear: "Let the earth bring forth grass, the herb that yields seed, and the fruit tree that yields fruit according to its kind, whose seed is in itself, on the earth." God supernaturally and specially created the different kinds of plants with seeds to produce more of the same kind. A coconut will never sprout a plum tree. The passages describing animals teach the same thing (Genesis 1:20–25; 6:19–20).

So rather than a single tree of life, we could draw an orchard of trees each representing a distinct kind of plant or animal.¹⁴¹ All of the branches on the tree represent the variation within those kinds that have resulted from different expressions of the initial genetic variation God programmed in the original organisms as well as later mutations and other forms of genetic mixing. This orchard model is also an idea developed from a certain philosophy—Biblical creation.

Both of these views offer explanations for the evidence that we have in the present, but only one can be correct. Each attempts to apply observational science to understand the history of life on earth. One problem with the evolutionary worldview is that it must rely on unprovable assumptions. In contrast, biblical creation begins from the eyewitness testimony of the Creator God as described in His trustworthy Word—the Bible. You can trust that God has created life on this Earth. He did it for a reason. And that means that He created you for a reason. You are not simply the result of random accidents and the laws of nature—God created you and offers you the opportunity to know Him through His Son, Jesus Christ (Colossians 2:1–10).

Though textbooks portray evolution as a natural process whereby naturally selected mutations build new and more complicated creatures over vast eons from old and simple ones, we have seen this formula fail. Nature can only select from the options organisms already possess, and mutations do not generate the options required to turn bacteria into finches, for example. The alternative origins explanation—biblical creation—fits the evidence just fine by explaining the original biological programming as having been created, and the constantly corrupting mutations as God's consequence for man's original sin.

Chapter 7:

Did Hippos Evolve into Whales?

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Why is this Chapter Important?

Biology textbooks use illustrations of "ancient" land-dwelling mammals turning into modern whales over millions of years to illustrate their version of history-evolution. For example, Miller & Levine's high school biology textbook prominently displays six creatures leading up to modern whales.¹⁴² This Chapter will review how these "prewhale" animals don't line up in any such fashion. We will show instead that these fossils represent extinct marine or land animals that never evolved into whales. Further, we will review some impossibilities with the idea in secular circles that some wolf-sized animals evolved into 360,000-pound sea-dwelling whales. Even evolutionists' own models show that these changes cannot be made given their own timescale. In the end, we wish our readers to gain confidence in the fact that so-called "whale evolution" falls far short of what its proponents say about it. In fact, we hope you will see not only how evolution fails whales, but how well the fossils fit into biblical history.

Overview

Whales are one of God's most magnificent creations. They are even mentioned specifically in the King James Bible translation: "And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind..." (Genesis 1:21). To begin our discussion on the evolution of whales, let's begin with a quick description of what makes whales so unique.

Let's start first with the obvious—whales are massive. They are the largest animals on Earth, with the 100-foot long female blue whale at the top of the list. This animal weighs in at 360,000 pounds (the equivalent of 2,000 people), has a tongue the size and weight of an African elephant, and a heart that is the size of a small car that pumps 2,640 gallons of blood.¹⁴⁴

Baleen whales have specially designed comb-like bristles in their mouths called "baleen" that enable them to eat tiny krill as they move through the ocean at speeds up to 30 miles per hour (requiring over 1,000 horsepower to do so!). Much of this power is generated by a tail that is 25 feet wide. Blue whales can dive over 1,500 feet and communicate with each other up to 1,000 miles away. Baleen whales feed by the enormously energetic process of 'lunge feeding,' and have a unique sensory organ to coordinate this so their jaws don't shatter. This organ senses the "dynamic rotation of the jaws during mouth opening and closure [and] provides the necessary input to the brain for coordinating the initiation, modulation and end stages of engulfment." To say the least, these are amazing creatures.

Evolutionists insist that these wonderful marine creatures, outfitted as they are with an array of specifications precisely targeted for successful life in water, evolved from ancestors that once had none of those specifications. These people write state-sponsored textbooks, yet have plenty

of explaining to do. How, step-by-step, and without using words like "evolution," "selection," or "emerged," could whales have evolved in the manner they describe?

Evolution faces a whale of a challenge, not just from a theoretical basis but from the standpoint of observational science. What creature kinds have served as the best candidates for evolutionary whale ancestry? The founder of the theory of evolution himself, Charles Darwin, had an idea. In the first edition (1865) of his well-known book, *The Origin of Species*, Darwin wrote:

In North America the black bear was seen... swimming for hours with widely open mouth, thus catching, like a whale, insects in the water. Even in so extreme a case as this, if the supply of insects were constant, and if better adapted competitors did not already exist in the country, I can see no difficulty in a race of bears being rendered, by natural selection, more and more aquatic in their structure and habits, with larger and larger mouths, till a creature was produced as monstrous as a whale.¹⁴⁶

While this section was removed from later editions of the book, in 1903 he stated that he still maintained his position of bears evolving into whales: "I still maintain that there is no special difficulty in a bear's mouth being enlarged to any degree useful to its changing habits."¹⁴⁷ Clearly, Darwin believed that any creature has an unlimited potential to change its form. He was wrong about this, and other places in this book tell why.

Fast-forward to the 1970s. Bears are now *out* of the evolutionary "whale line" and textbooks report other animal candidates as whale ancestors such as *Mesonychids*, known from fossils.¹⁴⁸ Then, in the 1980s, *Pakicetus* took first position.¹⁴⁹ Twenty years later, a large group of evolutionists

selected the *hippopotamus*, while another group placed pigs into the "evolving" evolutionary ancestry of whales.¹⁵⁰

What's next? Fortunately, from a biblical creation standpoint, God made whales on the Day 5 of Creation, each creature after their own *kind*. And this view hasn't changed since these words of Scripture were penned about 3,500 years ago!

If whale evolution is true, then we would expect many other transitional "in-between" whale-like animals, either living or fossil, each stepping up along the evolutionary tree. Just take a look at the differences between some of these "starter" animals, which were land mammals, and the whales into which they supposedly evolved. As Dr. Carl Werner points out:

Consider how miraculous it would be for a wolf or a bear or any such creature to evolve into the 13 families and 79 species of whales, from the finless porpoise measuring about four feet long, to the blue whale measuring 100 feet. The latter weighs 360,000 pounds (the equivalent of 2,000 people); its tongue is the size and weight of an African elephant; its heart is the size of a small car; its heart pumps 2,640 gallons of blood; and a human could swim through its massive aorta.¹⁵¹

A prominent evolutionary biologist now known for expressing doubt about some Darwinist claims, Dr. Richard Sternberg, studied whale evolution in depth. He concluded that there is simply not enough time within evolutionary time stamps to make *even a few of the changes* necessary to reorganize a land creature into a whale.¹⁵² Some of these changes had to include:

- Counter-current heat exchanger for intra-abdominal testes (to keep them cool)
- Ball vertebra (to enable the tail to move up and down instead of side to side)
- Tail flukes and musculature
- Blubber for temperature insulation
- Ability to drink sea water (reorganization of kidney tissues)
- Nurse young underwater (modified mammae)
- Forelimbs transformed into flippers
- Reduction of hindlimbs
- Reduction/loss of pelvis and sacral vertebrae
- Reorganization of the musculature for the reproductive organs
- Hydrodynamic properties of the skin
- Special lung surfactants
- Novel muscle systems for the blowhole
- Modification of the teeth
- Modification of the eye for underwater vision
- Emergence and expansion of the mandibular fat pad with complex lipid distribution
- Reorganization of skull bones and musculature
- Modification of the ear bones
- Decoupling of esophagus and trachea
- Synthesis and metabolism of isovaleric acid (toxic to terrestrial mammals)

In a debate regarding the origins of life, Dr. Sternberg stated, "How could this process alone have produced fully aquatic cetaceans (whales) with their multiple, anatomical novelties, requiring many hundreds, even thousands of adaptive changes in less than 2 million years—even less than 9 million years?... I'm saying it doesn't add up." We would need thousands of in-between examples of fossils demonstrating *each* of these requirements developing through time.

Making this evolutionary process even more difficult to believe, the jawbone of an ancient whale found in Antarctica in October 2011 was "dated" to 49 million years, which would imply that the first fully-developed whales now date to about the same time as one of the supposed whale "ancestors," named *Ambulocetus*. ¹⁵⁴

It is clear that what we have on Earth is a *created* "kind" of whales that have existed since Day 5 of Creation, and not some evolutionary line of land-mammals leading to the largest creature on Earth—a 360,000 pound blue whale that is able to swim up to 30 miles per hour, has a tongue that weighs as much as an elephant, a heart the size of a car, eats 4–8 tons of krill each day, and dives to depths of over 1,500 feet while holding its breath. By now, it should become clear that it takes more faith to believe in evolution than it does in whale Creation.

With this background in mind, we will next review and reject each of the animals that are supposedly linked together in the successive train of whale evolution.

Animals (that Don't Belong) in the Progression of Whale Evolution

Several high school and college biology textbooks display the supposed "whale evolution" model by putting several pictures of extinct and living animals side-by-side and bonding them together in a hypothetical evolutionary explanation that one animal led to the next, on up the evolutionary tree. For example, the first two in Miller & Levine's line-up (Ancient artiodactyls and *Pakicetus*) are land-dwelling mammals (similar to wolves), the next two (*Ambulocetus* and *Rodhocetus*) allegedly started developing fins and tails/flippers, the next two (*Basilosaurus* and *Dorudon*) are early whales, followed by the two suborders of modern whales: Mysticeti (baleen whales) and Odontoceti

(toothed whales).¹⁵⁵ Lined up this way, they seem to tell a neat evolutionary story. But as we will show, this arrangement follows more from an underlying philosophical commitment to evolution than to scientific data.

From a biblical creationist standpoint, these eight mammals are not related and have not evolved. Rather, the first two are simply extinct wolf-like creatures most likely buried and later fossilized by Noah's Flood, the next four are extinct whale-like creatures (which also likely died in the Flood), and the last two are obviously whales that still exist today.

Asserting that these eight animals are somehow all tied to the same evolutionary tree is similar to digging up a golf ball, baseball, and soccer ball in your backyard and saying, "See! This must be proof of ball evolution!" Just because animals shared some similar features or habitats does not mean that they are related, or that one led to the other! After all, nobody has ever observed a progression of one kind evolving into another. As discussed in Chapter 6, animals can and do *adapt* by making certain adjustments, such as "Darwin's Finches," but they do not change from one kind of animal to another. Indeed, Darwin's Finches are still finches—they differ only by beak size and shape. The same is true with whales.

Each of these "evolving whale" creatures will be discussed below, along with some amazing recent admissions made by the evolutionists who originally touted them as "proof" of evolution.

Ancient artiodactyl

"Artiodactyl" is a collective term used to mean "eventoed" animals, referring to their two or four hoofs per foot. According to evolutionary fossil-age assignments, they date back some 54 million years. Animals in this category include goats, sheep, camels, pigs, cows, and deer. Other than just

saying so, there is no evidence connecting this entire group of animals to whales. By suggesting that whales evolved from some "ancient artiodactyl," they implicitly admit that they do not have a real fossil connecting whales to other mammals, instead reaching for an imaginary, not-yet-found "ancestor."

Pakicetus

Pakicetus means "whale from Pakistan," but it looked nothing like a whale. It was originally represented by a few elongated wolf-like skull fragments that were first discovered by paleontologist Philip Gingerich in the early 1980s. ¹⁵⁶ Based on these skull fragments, Gingerich asserted that the Pakicetus was a "perfect intermediate" between land animals and whales. ¹⁵⁷ Drawings of the Pakicetus swimming in the ocean as a sea creature soon adorned standardized textbooks. ¹⁵⁸ At the time, it was easy to pretend that Pakicetus had a whale-like body, since we had no body fossils.

About ten years later, more Pakicetus fossils were discovered, including additional body fossils associated with skull material. "All the postcranial bones indicate that pakicetids were land mammals... Many of the fossils' features... indicate that the animals were runners, moving with only their digits touching the ground," according to the prestigious journal *Nature*. 159 These led to the conclusion that the Pakicetus was "no more amphibious than a tapir" Tapirs are modern browsing mammals living in South America, similar to pigs but with longer snouts. Once new fossils showed that it had well-organized, fast-running legs, was Pakicetus immediately removed from its iconic whale ancestry position in evolutionary textbook diagrams? Surprisingly, texts often still include Pakicetus. This is just bad science. Tapirs are alive today, and no one has seen these animals evolving at all, much less to anything close to a sea-dwelling whale. A recent article in *National Geographic* reports that Gingerich now believes that whales are related to antelopes based on a "single piece of fossil" found in 2000.¹⁶¹

Just viewing the illustration of the *Pakicetus* in common biology textbooks shows these animals to have simply been extinct, wolf-like mammals.

Ambulocetus

Ambulocetus is based on a set of fossil fragments that was discovered in Pakistan in 1993. To date there have been only two Ambulocetus fossils found. One high school biology textbook includes this creature in whale evolution by stating: "The limb structure of Ambulocetus walking whale suggests that these animals could both swim in shallow water and walk on land."

Alligators and crocodiles are reptiles that look similar to the mammal *Ambulocetus*, and they can swim and walk on land. Why have they not also been lined up in the evolutionary train leading to whales?

In his book, Evolution: A Theory in Crisis, evolutionary biochemist, Dr. Michael Denton, points out that Ambulocetus' backbone ends in the pelvic bone (from which powerful leg bones extend), which is typical for land mammals. In whales, on the other hand, the backbone continues right down to the tail and there is no pelvic bone at all. Basilosaurus, thought to have lived up to 10 million years after Ambulocetus, possesses a typical no-pelvis whale anatomy. There is no intermediate form between Ambulocetus, a typical terrestrial animal, and Basilosaurus, a typical whale. Note also that Basilosaurus is about 10 times longer than Ambulocetus, although evolutionary textbooks often draw them side-byside to make the 'transitional series' look better. Basilosaurus and sperm whales have small bones independent of the backbone in their lower bodies. Some evolutionists claim

that these are shrunken leg bones. However, the bones in question more likely had functional uses in reproduction in *Basilosaurus*, whereas in sperm whales they support the reproductive organs.¹⁶⁴ Why would they have evolved into legs if they were already useful in their present state?

Dr. Carl Werner points out that the evolution "evidence" involving *Ambulocetus* consists of nothing more than *just by saying so*:

According to Dr. Annalisa Berta, an expert in aquatic mammal evolution, "Ambulocetus is a whale by virtue of its inclusion in that lineage." In other words, Ambulocetus was defined as a "walking whale" not because it had a whale's tail or a whale's flippers or a blowhole, but because [some] evolution scientists believed it was on the line to becoming a whale, it became a "whale." And since it was a land animal with four legs, it was then called a "walking whale." Scientists who oppose evolution are quick to point out that this reasoning is circular and therefore specious. 165 (emphasis added)

Dr. Werner also pointed out that because *Ambulocetus* has eyes on the top of its head (like a crocodile) it should be clearly classified as a mammal with legs, having nothing to do with whales.

Rodhocetus

Rodhocetus was also found in Pakistan in 1992, and is now represented by three fossils.¹⁶⁶ The most well-known *Rodhocetus* is made up of two partial skeletons that make up an "early whale" that had short limbs, long hands, and feet.¹⁶⁷ The Levine & Miller biology textbook states that its hind limbs were "short and probably not able to bear much

weight. Paleontologists think that these animals spent most of their time in the water."168

Many of the textbook illustrations of the *Rodocetus* show it with legs and a dolphin or a common whale tail. For example, the *Proceedings of the National Academy of Sciences* showed *Rodhocetus* with a fluked tail similar to a typical whale. Several other textbooks followed the practice, making for a convincing presentation that this animal (all three of them) was some type of transition step along the way to today's whales.

Dr. Phil Gingerich, the paleontologist most responsible for the reconstruction and presentation of *Rodhocetus*, *added* a prominent tail and "fluke" (the wide fin at the end of the tail) to *Rodhocetus* when it was displayed at the Natural History Museum at the University of Michigan. When interviewed about why he added a whale fluke on *Rodhocetus*, Dr. Gingerich answered, "Well, I told you we don't have the tail in *Rodhocetus*. So, we don't know for sure whether it had a ball vertebrae indicating a fluke or not. So, I speculated it might have had a fluke." 170

During this same revealing interview, Dr. Gingerich also acknowledged that the flippers were drawn on the diagram without fossil representation! Today he no longer believes that this animal had flippers, stating, "Since then we have found the forelimbs, the hands, and the front arms of *Rodhocetus*, and we understand that it doesn't have the kind of arms that can spread out like flippers on a whale." Without flippers or tail, *Rodhocetus* should be removed from its evolutionary lineup. The way its features had been imaginatively added, like those of *Pakicetus* before more complete fossils were found, clearly show whale evolution to be a product of researchers' minds and not of scientific observation.

Basilosaurus

A total of over 100 *Basilosaurus* fossils have been found around the world including Egypt, Jordan, Pakistan, and in the United States (Mississippi and Alabama). One of the features that led evolutionists to believe that the *Basilosaurus* should be included in the "whale evolution line" are its hind "limbs." ¹⁷¹ Evolutionists frequently represent these limbs as "leftovers" from a supposed land-dwelling past. They supposedly lost their legs, evolved flippers, and became whales.

However, many leading evolutionists are now admitting that these limbs, like the small "leftover" limbs in "modern" whales, "could only be some kind of sexual or reproductive clasper." These "claspers" are necessary to join multi-ton animals tightly together while mating in water and swimming, a design found in numerous other sea creatures. Whale evolutionist Dr. Gingerich wrote:

Hind limbs of *Basilosaurus* appear to have been too small relative to body size... to have assisted in swimming, and they could not possibly have supported the body on land. However, maintenance of some function is likely... The pelvis of modern whales [not a limb-supporting "pelvis"] serves to anchor reproductive organs, even though functional hind limbs are lacking. Thus hind limbs of Basilosaurus are most plausibly interpreted as accessories facilitating reproduction.¹⁷³

It is also interesting that apparently no transitional fossils between current whales and the *Basilosaurus* have been found, even though hundreds of each have been found. If evolution is true, one would think that over 35 million years of evolution would have produced some fossilized examples of transitions, but the fossil record "jumps" from

Basilosaurus, which was a fully aquatic animal, to modern whales, with nothing in between.¹⁷⁴ In actuality, God created whales and *Basilosaurus* separately.

Dorudon

There have been over 50 *Dorudon* fossils discovered around the world. These animals are simply extinct whales. They had nostril openings (blowholes) on top of their skulls, measured about 50 feet long, and lived in the water full-time. I described them in an online article that I wrote in 2008:

The *Dorudon* was once classified as a juvenile *Basilosaurus*, since they are very similar, long, slender marine mammals, but *Dorudon* was 5 m long and *Basilosaurus* 18 m. They are now classified as separate subfamilies of Basolosauridae. They are most likely varieties of the same created kind, much as the false killer whale (*Pseudorca crassidens*) and a bottlenose dolphin (*Tursiops truncatus*) are the same biological species given that they can produce a fertile hybrid called a wholphin...the serpentine body structure, cheek teeth and nasal bones mean that it could not have been an ancestor to modern whales. Also, the allegedly vestigial hind limbs actually had an important function as reproductive claspers.¹⁷⁵

Finally, Mysticetes include grey, blue, and humpback whales, and Odontocetes include toothed whales like dolphins and sperm whales. These modern whales are already whales, so have no place in whale evolution.

Summary

One of the certain facts that we can know from fossils is that *the animal died*. However, fossils do not come with tags showing the year they were created or buried in mud. When the evolutionist assumptions are removed, we no longer have a string of animals that led one to the other. Rather, we have various created kinds of animals that died by rapid muddy burials and then fossilized when the mud later dried.

What we can know for certain regarding the supposed story of whale evolution is that its theories have often changed—bears, mesonychids, *Pakicetus*, and now hippopotamuses have rotated through. The biblical viewpoint, however, remains *unchanged* since penned about 3,500 years ago: Whales were created as whales that can express variations within each of their kinds: some died off (many did not survive the Flood), and many are still alive today. Figure 19 shows how Biblical Creation has maintained a solid, unchanging perspective regarding the origin of whales, compared to the changing ideas of evolutionary theory.

Figure 19. Creation Theories about Whales

Creation Theories about Whales							
Time line	>4000 B.C.	3000 B.C.	2000 B.C.	1000 B.C.	0	1000 A.D.	Present Day
	Undetermined						Bears?
Evolutionary							Pakicetus?
Perspective							Antelopes?
							Hippos?
Biblical Creation	God Intentionally Created Whales by Design						

Finally, considering the number of changes that are needed to turn a wolf, bear, hippopotamus, or pig into a 360,000 pound, 100-foot blue whale doesn't even pass the common sense test. It takes more faith to believe in that type of evolution than it does to believe in biblical creation. The multiple families of whales we have were simply created that way. Dr. Duane Gish describes such "incredible faith in the evolution" this way:

Evolutionists are forced to believe that whatever the need may be, no matter how complex and unusual, random genetic errors were able to produce the structures required in a perfectly coordinated manner... It requires an enormous faith in miracles, where materialist philosophy actually forbids them, to believe that some hairy, four-legged mammal crawled into the water and gradually, over eons of time, gave rise to whales, dolphins, sea cows, seals, sea lions, walruses, and other marine mammals via thousands and thousands of random genetic errors. This blind hit and miss method supposedly generated the many highly specialized complex organs and structures without which these whales could not function, complex structures which in incipient stages would be totally useless and actually detrimental. Evolution theory is an incredible faith.¹⁷⁶

Few of the members depicted in textbook illustrations of whale evolution belong there. Each shows evidence that it was a uniquely created creature, having no anatomical link to whales. Instead of showcasing evolution, the wonderful and integrated design features that make whale life possible should showcase their great Creator, the God of the Bible.

Endnotes



- ¹ Ken Ham, "Culture and Church in Crisis," AnswersinGenesis.com: http://www.answersingenesis.org/articles/am/v2/n1/culture-church-crisis (January 1, 2014) and survey data: http://www.answersingenesis.org/articles/am/v2/n1/aig-poll (data) (January 1, 2014).
- ² Results for this USA Today/Gallup poll are based on telephone interviews conducted May 10–13, 2012, with a random sample of 1,012 adults, aged 18 and older, living in all 50 U.S. states and the District of Columbia.
- ³ Frank Newport, "In U.S., 46% Hold Creationist View of Human Origins: Highly Religious Americans most likely to believe in Creationism," Gallop.com: http://www.gallup.com/poll/155003/hold-creationist-view-human-origins. aspx (June 1, 2012).
- ⁴ Kenneth R. Miller & Joseph S. Levine, *Biology* (Boston, Mass: Pearson, 2010): 466.
- ⁵ Introduction and Table from: "The Bible and Science Agree," Creationism.org: http://www.creationism.org/articles/BibleSci.htm (January 1, 2014).
- ⁶ Ken Ham & T. Hillard, *Already Gone: Why your Kids will Quit Church and what you can do stop it* (Green Forest, AR: Master Books, 2009).
- ⁷ S. Michael Houdmann, "How and when was the Canon of the Bible put together?" Got Questions Online: http://www.gotquestions.org/canon-Bible.html (November 7, 2013).

- ⁸ The reader is encouraged to review these additional resources: Henry Halley, *Halley's Bible Handbook* (Grand Rapids: Zondervan Publishing House, 1927, 1965); Arthur Maxwell, *Your Bible and You* (Washington D.C.: Review and Herald Publishing Association, 1959); Merrill Unger, *Unger's Bible Handbook* (Chicago: Moody Press, 1967).
- ⁹ For example, in 1946 the Dead Sea Scrolls were discovered, which included over 900 manuscripts dating from 408 B.C. to A.D. 318. These manuscripts were written mostly on parchment (made of animal hide) but with some written on papyrus. Because these materials are fragile, they have to be kept behind special glass in climate controlled areas.
- ¹⁰ Josh McDowell, *The New Evidence that Demands a Verdict* (Nashville: Thomas Nelson Publishers).
- ¹¹ McDowell, *The New Evidence that Demands a Verdict*, p. 38.
- ¹² McDowell, *The New Evidence that Demands a Verdict*, p. 38.
- ¹³ Most of the 11 verses come from 3 John. See: Norman Geisler & William Nix. *A General Introduction to the Bible* (Chicago: Moody Press, 1986), 430.
- ¹⁴ Geisler & Nix, A General Introduction to the Bible, p. 430.
- 15 Theophilus ben Ananus was the High Priest in Jerusalem from A.D. 37 to 41 and was one of the wealthiest and most influential Jewish families in Iudaea Province during the 1st century. He was also the brother-in-law of Joseph Caiaphas, the High Priest before whom Jesus appeared. See Wikipedia and B. Cooper, *The Authenticity of the Book of Genesis* (Portsmouth, UK: Creation Science Movement, 2012).
- ¹⁶ B. Cooper, *Authenticity of the New Testament*, *Vol. 1: The Gospels*. Electronic book (2013).
- ¹⁷ The Digital Dead Sea Scrolls Online, Directory of Qumran Dead Sea Scroll: http://dss.collections.imj.org.il/isaiah (December 10, 2013).
- ¹⁸ Source for DSS: Fred Mille, "Qumran Great Isaiah Scroll," Great Isaiah Scroll: http://www.moellerhaus.com/qumdir.

- htm; Source for Aleppo Codes JPS: "Mechon Mamre" (Hebrew for Mamre Institute): http://www.mechon-mamre. org/p/pt/pt1053.htm (December 10, 2013).
- ¹⁹ Norman & Nix. A General Introduction to the Bible.
- ²⁰ Samuel Davidson, *Hebrew Text of the Old Testament*, 2d ed. (London: Samuel Bagster & Sons, 1859), 89.
- ²¹ Mary Fairchild, "44 Prophecies of the Messiah Fulfilled in Jesus Christ," About.com: http://christianity.about.com/od/biblefactsandlists/a/Prophecies-Jesus.htm (December 18, 2013).
- ²² See: Genesis 7:19 ("all the high hills under the whole heaven were covered"); Genesis 7:21–22 ("all flesh died that moved upon the earth…all that was in the dry land"); Matthew 24:39 ("The flood came, and took them all away"); and 2 Peter 3:6 ("By these waters also the world of that time was deluged and destroyed."). God also promised in Genesis 9:11 that there would be no more floods like the one of Noah's day.
- ²³ Ken Ham, "They Can't Allow "It"!" AnswersinGenesis. com: http://www.answersingenesis.org/articles/au/cant-allow-it (January 1, 2014).
- ²⁴ Eva Vergara & Ian James, "Whale Fossil Bonanza in Desert Poses Mystery," Science on msnbc.com: http://www.msnbc.msn.com/id/45367885/ns/technology_and_science-science/ (November 20, 2013).
- ²⁵ D.A. Eberth, D.B. Brinkman, & V. Barkas, "A Centrosaurine Mega-bonebed from the Upper Cretaceous of Southern Alberta: Implications for Behaviour and Death Events" in New Perspectives on Horned Dinosaurs: The Ceratopsian Symposium at the Royal Tyrrell Museum (September 2007).
- ²⁶ Michael Reilly, "Dinosaurs' Last Stand Found in China?" Discovery.com: http://news.discovery.com/earth/dinosaurs-last-stand-found-in-china.htm (January 1, 2014).
- ²⁷ Michael J. Oard, "The Extinction of the Dinosaurs," *Journal of Creation* 11(2) (1997): 137–154.

- ²⁸ J.R. Horner & J. Gorman, *Digging Dinosaurs* (New York: Workman Publishing, 1988), 122–123.
- ²⁹ John Woodmorappe, "The Karoo Vertebrate Non-Problem: 800 Billion Fossils or Not," *CEN Technical Journal* 14, no.2 (2000): 47.
- ³⁰ R. Broom, *The Mammal-like Reptiles of South Africa* (London: H.F.G., 1932), 309.
- ³¹ Steven Austin, "Nautiloid Mass Kill and Burial Event, Redwall Limestone (Lower Mississippian) Grand Canyon Region, Arizona and Nevada," in Ivey Jr. (Ed.). Proceedings of the Fifth International Conference on Creationism (Pittsburg, Pennsylvania: Creation Science Fellowship): 55–99.
- ³² Andrew Snelling, *Earth's Catastrophic Past: Geology, Creation & the Flood*, Vol. 2 (Dallas, TX: Institute for Creation Research, 2009), 537.
- ³³ Snelling, Earth's Catastrophic Past: Geology, Creation & the Flood, p. 537.
- ³⁴ David Cloud, *An Unshakeable Faith: A Christian Apologetics Course* (Port Huron, MI: Way of Life Literature, 2011).
- ³⁵ Snelling, Earth's Catastrophic Past: Geology, Creation & the Flood, p. 538.
- ³⁶ Snelling, Earth's Catastrophic Past: Geology, Creation & the Flood, p. 539.
- ³⁷ Andrew Snelling, "The World's a Graveyard Flood Evidence Number Two," AnswersinGenesis: http://www.answersingenesis.org/articles/am/v3/n2/world-graveyard (January 1, 2014).
- ³⁸ Cloud, An Unshakeable Faith: A Christian Apologetics Course.
- ³⁹ Cloud, An Unshakeable Faith: A Christian Apologetics Course.
- ⁴⁰ N. O. Newell, "Adequacy of the Fossil Record," *Journal of Paleontology*, 33 (1959): 496.

- ⁴¹ Darwin, *The Origin of Species*, p. 298.
- ⁴² Luther Sunderland, *Darwin's Enigma* (Arkansas: Master Books, 1998), 129.
- ⁴³ Cloud, An Unshakeable Faith: A Christian Apologetics Course.
- ⁴⁴ Photo by Ian Juby. Reproduced with permission. Tas Walker, "Polystrate Fossils: Evidence for a Young Earth," Creation.com: http://creation.com/polystrate-fossils-evidence-for-a-young-earth (January 3, 2014).
- ⁴⁵ John D. Morris, "What Are Polystrate Fossils?" *Acts & Facts*, 24 (9) (1995).
- ⁴⁶ Tas Walker & Carl Wieland, "Kamikaze ichthyosaur? Long-age Thinking Dealt a Lethal Body Blow," *Creation Magazine*, 27 (4) (September 2005). See: Creation.com: http://creation.com/kamikaze-ichthyosaur (December 31, 2013).
- ⁴⁷ Walker & Wieland, 2005 (figure reproduced with permission: Creation.com).
- ⁴⁸ Carl Wieland, *Stones and Bones* (Green Forest, AR: Master Books, 1984).
- ⁴⁹ Andrew Snelling, "Transcontinental Rock Layers: Flood Evidence Number Three," Answers Magazine.com: *http://www.answersingenesis.org/articles/am/v3/n3/transcontinental-rock-layers* (December 17, 2013).
- ⁵⁰ David Catchpoole, "Giant Oysters on the Mountain," *Creation*, 24 (2) (March 2002): 54–55.
- ⁵¹ Richard F. Flint. *Glacial Geology and the Pleistocene Epoch* (New York: Wiley, 1947), 514–515.
- ⁵² Humans lived much longer before the Flood due to both changes in human DNA (from sin entering the world through the fall of Adam) and climate changes in the post-flood world. See D. Menton & G. Purdom, "Did People Like Adam and Noah Really Live Over 900 Years of Age?" in Ken Ham. *The New Answers Book 2* (Green Forest: AR Master Books), 164; David Menton & Georgia

- Purdom, "Chapter 16: Did People Like Adam and Noah Really Live Over 900 Years of Age?" (May 27, 2010). AnswersinGenesis.com: http://www.answersingenesis.org/articles/nab2/adam-and-noah-live (January 1, 2014).
- ⁵³ There is no conflict regarding the estimated age of these trees and the estimated time of Noah's Flood. See: Mark Matthews, "Evidence for multiple ring growth per year in Bristlecone Pines," *Journal of Creation*, 20 (3) (2006): 95–103.
- ⁵⁴ D.E Kreiss, "Can the Redwoods Date the Flood?" *Institute for Creation Research Impact* (Article #134, 1984).
- ⁵⁵ Michael Oard, "The Remarkable African Planation Surface," *Journal of Creation* 25 (1) (2011): 111–122.
- ⁵⁶ Dr. Hong earned his Ph.D. degree in applied mechanics from the University of Michigan, Ann Arbor.
- ⁵⁷ S.W. Hong, S.S. Na, B.S. Hyun, S.Y. Hong, D.S. Gong, K.J. Kang, S.H. Suh, K.H. Lee, and Y.G. Je, "Safety investigation of Noah's Ark in a seaway," Creation.com: http://creation.com/safety-investigation-of-noahs-ark-in-a-seaway (January 1, 2014).
- ⁵⁸ John Whitcomb, *The World that Perished* (Grand Rapids, Michigan: Baker Book House, 1988), 24.
- ⁵⁹ See John Woodmorappe, *Noah's Ark: A Feasibility Study* (Dallas, TX: Institute for Creation Research, 2009).
- 60 Woodmorappe, Noah's Ark: A Feasibility Study, 2009.
- ⁶¹ Readers are encouraged to study where the water went after the Flood at the AnswersinGenesis.com website.
- ⁶² Humans lived much longer before the Flood due to both changes in human DNA (from sin entering the world through the fall of Adam) and climate changes in the post-flood world. See D. Menton & G. Purdom, "Did People Like Adam and Noah Really Live Over 900 Years of Age?" in Ken Ham. *The New Answers Book 2* (Green Forest: AR Master Books), 164; David Menton & Georgia Purdom, "Chapter 16: Did People Like Adam and Noah

- Really Live Over 900 Years of Age?" (May 27, 2010). AnswersinGenesis.com: http://www.answersingenesis.org/articles/nab2/adam-and-noah-live (January 1, 2014).
- ⁶³ There are several resources for this topic of study. See, for example: "Michael Oard, "Chapter 7: The Genesis Flood Caused the Ice Age," (October 1, 2004), Answersin Genesis. com: http://www.answersingenesis.org/articles/fit/flood-caused-ice-age (January 6, 2014).
- ⁶⁴ Ken Ham, "What Really Happened to the Dinosaurs?" (October 25, 2007), AnswersinGenesis.com: http://www.answersingenesis.org/articles/nab/what-happened-to-the-dinosaurs (January 6, 2014).
- 65 Miller & Levine, Biology, p. 466.
- ⁶⁶ Gunter Faure, *Principles of Isotope Geology*, 2nd ed. (John Wiley & Sons, 1986), 41, 119, 288.
- ⁶⁷ A.O. Woodford, *Historical Geology* (W.H. Freeman and Company, 1965), 191–220.
- ⁶⁸ Judah Etinger, *Foolish Faith* (Green Forest, AR: Master Books, 2003), Chapter 3.
- ⁶⁹ Larry Vardiman, "The Age of the Earth's Atmosphere, a Study of the Helium Flux through the Atmosphere," *Institute for Creation Research*, 1990.
- ⁷⁰ C.S. Noble & J.J Naughton, *Science*, 162 (1968): 265–266.
- ⁷¹ Data compiled and modified after Snelling (1998): Andrew Snelling, "The Cause of Anomalous Potassium-Argon "ages" for Recent Andesite Flows at Mt. Ngauruhoe, New Zealand, and the Implications for Potassium-argon Dating," in Robert E. Walsh (ed.), *Proceedings of the Fourth International Conference on Creationism* (1998), 503–525.
- ⁷² J. Hebert, "Rethinking Carbon-14 Dating: What Does It Really Tell Us about the Age of the Earth?" *Acts & Facts* 42 (4) (2013): 12–14.
- ⁷³ Modified from: J. Baumgardner, "Carbon-14 Evidence for a Recent Global Flood and a Young Earth." In Radioisotopes and the Age of the Earth: Results of a

- Young-Earth Creationist Research Initiative. Vardiman, L., A. A. Snelling, and E. F. Chaffin, eds. (San Diego, CA: Institute for Creation Research and Chino Valley, AZ: Creation Research Society), 605 (Table 2).
- ⁷⁴ M.J. Walter, S.C. Kohn, D. Araugo, G.P. Bulanova, C.B. Smith, E. Gaillou, J. Wang, A. Steele, S. B., Shirey, "Deep Mantle Cycling of Oceanic Crust: Evidence from Diamonds and Their Mineral Inclusions," *Science*, 334 no. 6052 (September 15, 2011): 54–57.
- ⁷⁵ Walter et al., 2011.
- ⁷⁶ Modified from Baumgardner, 2005, Table 6, p. 614.
- ⁷⁷ Baumgardner, 2005.
- ⁷⁸ Brian Thomas, "*The Incredible, Edible '190 Million-Year-Old Egg,*" Institute for Creation Research Online: http://www.icr.org/article/7415/) (December 8, 2013).
- ⁷⁹ M.H. Schweitzer, L. Chiappe, A. C. Garrido, J.M. Lowenstein, & S.H. Pincus, "Molecular Preservation in Late Cretaceous Sauropod Dinosaur Eggshells," *Proceedings of the Royal Society B: Biological Sciences*, Volume 272 (1565) (2005): 775–784.
- ⁸⁰ Brian Thomas, "Published Reports of Original Soft Tissue Fossils" Institute for Creation Research Online: http://www.icr.org/soft-tissue-list/ (December 20, 2013).
- ⁸¹ Brian Thomas, "A Review of Original Tissue Fossils and Their Age Implications," in M. Horstemeyer (ed.), *Proceedings of the Seventh International Conference on Creationism* (2013).
- ⁸² Data compiled and simplified from Tables 1 and 2 in Austin and Humphries (1990): Stephen Austin & D. Humphreys, Russell, "The Sea's Missing Salt: A Dilemma for Evolutionists," in R. E. Walsh & C. L. Brooks (eds.), Proceedings of the Fourth International Conference on Creationism (1990), 17–33.
- 83 Snelling, Earth's Catastrophic Past.
- 84 Snelling, Earth's Catastrophic Past.

- ⁸⁵ Don De Young, *Thousands.. Not Billions* (Green Forest, AR: Master Books, 2005).
- ⁸⁶ Jonathan Wells, *Icons of Evolution: Science or Myth?* Why Much of What We Teach About Evolution Is Wrong (Washington, D.C.: Regnery Publishing, Inc., 2000), 35, 37.
- ⁸⁷ The coelacanth is supposedly an ancestor to amphibians that dates back 300 million years; however, the coelacanth appears "suddenly" in the fossil record, and modern coelacanths "were also found to give birth to live young (like some sharks), unlike their supposed descendants, the amphibians." See: K.S. Thomson, *Living Fossil* (New York, NY: W.W. Norton & Company, 1991), 137–144.
- ⁸⁸ Creationwiki.com: http://creationwiki.org/Archaeopteryx (January 3, 2014).
- ⁸⁹ Percival Davis, Dean H. Kenyon, & Charles B. Thaxton (ed). Of Pandas and People: The Central Question of Biological Origins, 2d ed. (Dallas, TX: Haughton Publishing Company, 1989), 22–23.
- ⁹⁰ John D. Morris, *The Young Earth: The Real History of the Earth, Past, Present, and Future* (Colorado Springs, CO: Master Books, 1994).
- ⁹¹ Jerry Adler & John Carey, "Is Man a Subtle Accident?" *Newsweek*, 8, no. 95 (Nov. 3, 1980), 96.
- ⁹² Stephen J. Gould & Niles Eldredge, "Punctuated Equilibria: The Tempo and Mode of Evolution Reconsidered," *Paleobiology*, 3, no. 2 (April 1977), 115–151.
- ⁹³ Brian Thomas, "150 Years Later, Fossils Still Don't Help Darwin," Institute for Creation Research Online: http:// www.icr.org/article/4546/ (December 20, 2013).
- ⁹⁴ Carl Werner, "Evolution the Grand Experiment," The Grand Experiment: *http://www.thegrandexperiment.com/index.html* (January 1, 2014).
- ⁹⁵ Carl Werner, Living Fossils. Evolution: The Grand Experiment (Vol. 2) (Green Forest, AR: New Leaf Press, 2008), 242.

- ⁹⁶ Carl Werner, *Evolution: The Grand Experiment* (Green Forest, AR: New Leaf Press, 2007), 86.
- ⁹⁷ Chart adapted from: Michael Denton, *Evolution: A Theory in Crisis* (Bethesda: Adler & Adler, 1985).
- Oharles Darwin, The Origin of Species by Means of Natural Selection (New York: The Modern Library, 1859), 124-125.
- ⁹⁹ Wells, Icons of Evolution: Science or Myth?—Why Much of What We Teach About Evolution Is Wrong, pp. 41–42.
- Robert F. DeHaan & John L. Wiester, "The Cambrian Explosion: The Fossil Record & Intelligent Design," Touchstone (July/August 1999), 65–69.
- ¹⁰¹ Wells, Icons of Evolution: Science or Myth?—Why Much of What We Teach About Evolution Is Wrong, 42.
- ¹⁰² DeHaan & Wiester, 1999, p. 68.
- ¹⁰³ Paul S. Taylor, *The Illustrated ORIGINS Answer Book*, 4th ed. (Mesa, AZ: Eden Productions, 1992), 97.
- ¹⁰⁴ A fourth category also exists: Those findings that are unknown or unidentified.
- William K. Gregory, "Hesperopithecus Apparently Not an Ape nor a Man," *Science*, 66 (1720) (December 16, 1927): 579-581.
- ¹⁰⁶ Ralph M. Wetzel, et al., "Catagonus, An 'Extinct' Peccary, Alive in Paraguay," *Science*, 189 (4200) (Aug. 1, 1975): 379.
- ¹⁰⁷ Duane T. Gish, *Evolution: The Fossils Still Say NO!* (El Cajon, CA: Institute for Creation Research, 1995), 328.
- Herbert Wray, "Was Lucy a Climber? Dissenting Views of Ancient Bones," *Science News*, 122 (August 21, 1982): 116.
- ¹⁰⁹ Brian G. Richmond & David S. Strait, "Evidence That Humans Evolved From a Knuckle-Walking Ancestor," *Nature*, 404 (6776) (March 23, 2000), 339–340, 382–385.
- ¹¹⁰ Sir Solly Zuckerman, *Beyond the Ivory Tower* (London: Taplinger Publishing Co., 1970), 78.

- Wray Herbert, "Lucy's Uncommon Forbear," *Science News*, 123 (February 5, 1983): 89.
- ¹¹² Albert W. Mehlert, "Lucy—Evolution's Solitary Claim for an Ape/Man: Her Position is Slipping Away," *Creation Research Society Quarterly*, 22 (3) (December, 1985): 145.
- ¹¹³ Marvin L. Lubenow, *Bones of Contention* (Grand Rapids, MI: Baker Books, 1992), 179.
- ¹¹⁴ DeWitt Steele & Gregory Parker, *Science of the Physical Creation*, 2d ed. (Pensacola, FL: A Beka Book, 1996), 299.
- ¹¹⁵ "Newsto Note" (October 3, 2009). Answersin Genesis.com: http://www.answersingenesis.org/articles/2009/10/03/news-to-note-10032009 (January 5, 2014).
- ¹¹⁶ B. Asfaw, R.T. Kono, D. Kubo, C.O. Lovejoy, T.D. White, "The Ardipithecus Ramidus Skull and its Implications for Hominid Origins," *Science* 326 (October 2, 2009): 5949.
- ¹¹⁷ Brian Thomas, "Did Humans Evolve from 'Ardi'"? Acts and Facts (October 6, 2009), ICR.com: *http://www.icr.org/article/4982/* (January 6, 2014).
- Minutes: Skepticism about a fossil cast as a missing link in human ancestry," Scientific American: http://www.scientificamerican.com/article.cfm?id=weak-link-fossil-darwinius (January 6, 2014).
- ¹¹⁹ National Geographic News, "Missing Link Found: New Fossil Links Humans, Lemurs?" National Geographic News: http://news.nationalgeographic.com/news/2009/05/090519-missing-link-found.html (January 5, 2014).
- 120 "Ida (Darwinius masillae): the Missing Link at Last? Does Ida Deserve the Attention? A Preliminary Comment," AnswersinGenesis.com: http://www.answersingenesis.org/articles/2009/05/19/ida-missing-link (January 5, 2014).
- ¹²¹ Marvin L. Lubenow, "Recovery of Neandertal mDNA: An Evaluation," *CEN Technical Journal*, 12 (1) (1998): 89.

- ¹²² Jack Cuozzo, "Buried Alive: The Truth about Neanderthal Man," *Truths That Transform Action Sheet* (Radio Program, aired on March 14–15, 2000).
- ¹²³ Lubenow, 1992, p. 63.
- ¹²⁴ DeWitt Steele & Gregory Parker, *Science of the Physical Creation*, 2nd ed (Pensacola, FL: A Beka Book, 1996), 301.
- ¹²⁵ M.L. Lubenow, "Recovery of Neandertal mDNA: An Evaluation," *CENTechnical Journal*, 12(1)(1998): 89–90.
- ¹²⁶ Jack Cuozzo, Buried Alive: The Startling Truth About Neanderthal Man (Green Forest, AZ: Master Books, 1998), 162, 163, 203.
- ¹²⁷ Cuozzo, Buried Alive: The Truth about Neanderthal Man (2000).
- ¹²⁸ Green, R. E. et al. A Draft Sequence of the Neandertal Genome. *Science*. 328 (5979) (2010): 710–722.
- ¹²⁹ Steele & Parker, *Science of the Physical Creation*, pp. 301–302.
- ¹³⁰ Vance Ferrell, *The Evolution Cruncher* (Altamont, TN: Evolution Facts, Inc., 2001), 529.
- ¹³¹ Lubenow, 1992, p. 235.
- ¹³² Ian Taylor, "Fossil Man" Creation Moments Online: http://www.creationmoments.com/content/fossil-man (January 1, 2014).
- ¹³³ Vance Ferrell, *The Evolution Cruncher* (Altamont, TN: Evolution Facts, Inc., 2001), 529.
- ¹³⁴ Lubenow, 1992, p. 99.
- ¹³⁵ Eugene DuBois, "On the Fossil Human Skulls Recently Discovered in Java and Pithecanthropus Erectus," *Man*, 37 (January 1937): 4.
- ¹³⁶ Pat Shipman, "On the Trail of the Piltdown Fraudsters," *New Scientist*, 128 (October 6, 1990): 52.
- ¹³⁷ Lubenow, 1992, pp. 42–43.
- ¹³⁸ Lubenow, 1992, pp. 139–140.
- ¹³⁹ Richard Dawkins, *River out of Eden* (Basic Books, 1995), 98.

- ¹⁴⁰ John D. Morris, "Does 'The Beak of the Finch' Prove Darwin Was Right?" ICR.org: http://www.icr.org/article/1135/ (January 1, 2014).
- ¹⁴¹ This orchard model was developed by Dr. Kurt Wise and has been refined by many creation scientists over the years.
- ¹⁴² Miller & Levine, *Biology*, pp. 466-467.
- ¹⁴³ Other translations, such as the NIV, translate this section as "great creatures of the sea." The Hebrew phrase used for "great sea creatures" is hattannînim haggədölîm (תאה מלדגגאה מדננואת). The lemma gadôl (לראג) certainly means big or great great. Tannîn (נונאק) is often translated "sea monsters" or "dragons." Thus while the KJV translates this as "great whales," the term is broader. It would also include living large sea creatures like the great white shark and the whale shark. Surprising as it is to those used to faulty "millions of years" claims, the term would also include many famous extinct sea creatures. These include ichthyosaurs (from the Greek for "fish lizard"), somewhat like reptilian versions of dolphins; some grew huge, such as the 21-m (69-foot)-long Shastasaurus sikanniensis. Other creatures included in the term tannîn would be the short-necked long-headed pliosaurs, such as Liopleurodon, 6.4 (21 feet) long, although the 1999 BBC series Walking With Dinosaurs portrayed it as 25 m (82 ft.) long, far larger than any known specimen. There were also the long-necked plesiosaurs such as Elasmosaurus, 14 m (46 feet) long, half of it the neck. Other tannin created on Day 5 were mosasaurus, like marine versions of monitor lizards, the largest of which was Hainosaurus, at 17.5 meters (57 ft.) long.
- ¹⁴⁴ Werner, Evolution: The Grand Experiment, p. 40.
- ¹⁴⁵ N.D. Pyenson, et al., "Discovery of a Sensory Organ that Coordinates Lunge Feeding in Rorqual Whales," *Nature* 485 (7399) 2012: 498–501. J. Sarfati, "Baleen

- Whales have Unique Sensory Organ," *Creation* 35 (4) (2013): 38–40.
- ¹⁴⁶ Charles Darwin, *The Origin of Species* 1st ed. (1865): Chapter 6, p. 184.
- ¹⁴⁷ Francis Darwin, *More Letters of Charles Darwin* (London: J. Murray, 1903): 162.
- ¹⁴⁸ Leigh Van Valen, "Deltatheridia, a New Order of Mammals," *Bulletin of the American Museum of Natural History* 132 (1966): 92.
- ¹⁴⁹ Philip D. Gingerich & D. E. Russell, "Pakicetus inachus, a new archaeocete (Mammalia, Cetacea) from the early-middle Eocene Kuldana Formation of Kohat (Pakistan)," *University of Michigan Museum of Paleontology*, 25 (1981): 235–246.
- University Of Michigan, "New Fossils Suggest Whales And Hippos Are Close Kin," *Science Daily* (September 20, 2001); University Of California, Berkeley, "UC Berkeley, French Scientists Find Missing Link Between The Whale And Its Closest Relative, The Hippo," *Science Daily* (February 7, 2005); Patricia Reaney, "Fossil Finds Show Whales Related to Early Pigs," Greenspun: http://www.greenspun.com/bboard/q-and-a-fetch-msg.tcl?msg_id=006QvI.
- ¹⁵¹ Werner, Evolution: The Grand Experiment, p. 40.
- ¹⁵² Casey Luskin, "Nice Try! A Review of Alan Rogers's The Evidence for Evolution," (October 18, 2011), Evolution News: http://www.evolutionnews.org/2012/04/a_review_of_ala058641.html (December 25, 2013).
- ¹⁵³ "Debate on Origins of Life," Discovery Institute: *http://www.discovery.org/v/1711*, (December 25, 2013).
- 154 Luskin, 2011.
- ¹⁵⁵ Miller & Levine, *Biology*, p. 466.
- ¹⁵⁶ Philip D. Gingerich, NA. Wells, Donald Russell, S.M. Shaw, "Origin of Whales in Epicontinental Remnant

- Seas: New Evidence from the Early Eocene of Pakistan," *Science* 220 (4595) (April 22, 1983): 403–406.
- ¹⁵⁷ Phillip Gingerich, "The Whales of Tethys," *Natural History*, (April 1994): 86.
- ¹⁵⁸ P.D. Gingerich, "Evidence for Evolution from the Vertebrate Fossil Record," *Journal for Geological Education*, 31 (1983): 140-144.
- ¹⁵⁹ Christian de Muizon, "Walking with Whales," *Nature* 413, (September 20, 2001): 259–260.
- ¹⁶⁰ G.M. Thewissen, E.M. Williams, L.J. Roe, & S.T. Hussain, "Skeletons of Terrestrial Cetaceans and the Relationship of Whales to Artiodactyls," *Nature* 413 (September, 2001): 277-281.
- ¹⁶¹ David Quammen, "Was Darwin Wrong?" *National Geographic*, 206 (5) (November, 2004): 2–35.
- ¹⁶² Fossilworks Paleobiology Database: *http://fossilworks.org* (December 25, 2013).
- ¹⁶³ Miller & Levine, *Biology*, p. 466.
- ¹⁶⁴ Michael Denton, *Evolution: A Theory in Crisis*, (Bethesda: Adler & Adler, 1985), 210-211,
- ¹⁶⁵ Werner, Evolution: The Grand Experiment, pp. 137–138.
- ¹⁶⁶ Fossilworks Paleobiology Database: http://fossilworks. org (December 25, 2013).
- ¹⁶⁷ J. G. M. Thewissen & E. M. Williams, "The Early Radiations of Cetacea (Mammalia): Evolutionary Pattern and Developmental Correlations," *Annual Review of Ecological Systems*, 33 (2002): 73–90.
- ¹⁶⁸ Miller & Levine, *Biology*, p. 466.
- ¹⁶⁹ Working Group on Teaching Evolution, "National Academy of Sciences Teaching about Evolution and the Nature of Science, (Washington, D.C.: National Academy Press, 1998): 18.
- ¹⁷⁰ Carl Werner, *Evolution: The Grand Experiment* (DVD) (Based on interview conducted on August 28, 2001),

- (Green Forest, AR: New Leaf Publishing Group/Audio Visual Consultants Inc.).
- ¹⁷¹ "Basilosaurus," Celebrating 100 Years: Explore Our Collections, Smithsonian National Museum of Natural History: *http://www.mnh.si.edu* (February 10, 2012).
- Phillip Gingerich, *The Press-Enterprise*, (July 1, 1990): A-15.
- ¹⁷³ Philip Gingerich, B. Holly Smith, & Elwyn L. Simons, "Hind limbs of Eocene Basilosaurus: Evidence of Feet in Whales," Science, Vol. 249, (July 13, 1990): 156.
- "Whales with 'non-feet,'" Creation.com: http://creation. com/focus-142#nonfeet (December 26, 2013).
- ¹⁷⁵ Jonathan Sarfati, "Science, Creation and Evolutionism: Response to the Latest Anticreationist Agitprop from the US National Academy of Sciences (NAS)," Creation. com: http://creation.com/science-creation-and-evolu-tionism-refutation-of-nas (December 26, 2013).
- ¹⁷⁶ D.T. Gish, *Evolution: The Fossils still say no!* (El Cajon, CA: Institute for Creation Research, 1985): 206–208.
- ¹⁷⁷ Jonathan Silvertown (ed), 99% Ape: How Evolution Adds Up (University of Chicago Press, 2009), 4.
- ¹⁷⁸ Various sources will show minor differences in these comparisons. They are for example only.
- ¹⁷⁹ Silvertown, 2009.
- ¹⁸⁰ PBS NOVA, "Darwins' Predictions," PBS: http://www.pbs.org/wgbh/nova/id/pred-nf.html (December 11, 2013).
- ¹⁸¹ This comes from comparing the total base pairs to the "golden path length" in the Ensemble database (http://useast.ensembl.org/Homo_sapiens/Info/StatsTable?db=core (January 1, 2014). These numbers should be the same. As long as they are different, there is uncertainty in the number of base pairs in the genome.
- ¹⁸² Jeffery P. Demuth, Tijl De Bie, Jason E. Stajich, Nello Cristianini, & Matthew W. Hahn, "The Evolution of Mammalian Gene Families," *PLOS ONE*, 10 (2006).

- ¹⁸³ Richard Buggs, "Chimpanzee?" RD.NL: http://www.refdag.nl/chimpanzee_1_282611 (December 11, 2013).
- ¹⁸⁴ Jeffrey P. Tomkins, "Comprehensive Analysis of Chimpanzee and Human Chromosomes Reveals Average DNA Similarity of 70%," *Answers Research Journal* 6 (2013): 63–69.
- ¹⁸⁵ Mary-Claire King & A. C. Wilson, "Evolution at Two Levels in Humans and Chimpanzees," *Science* 188 (1975): 107–116.
- ¹⁸⁶ R.J Rummel, "Statistics of Democide: Genocide and Mass Murder Since 1900," *School of Law, University of Virginia* (1997); and Transaction Publishers, Rutgers University (2013).
- ¹⁸⁷ J. Bergman & J. Tomkins, "Is the Human Genome Nearly Identical to Chimpanzee? A Reassessment of the Literature." *Journal of Creation* 26 (2012): 54–60.
- ¹⁸⁸ Bergman & Tomkins, 2012.
- ¹⁸⁹ J. Tomkins, "How Genomes are Sequenced and why it Matters: Implications for Studies in Comparative Genomics of Humans and Chimpanzees," *Answers Research Journal* 4 (2011): 81–88.
- ¹⁹⁰ I. Ebersberger, D. Metzler, C. Schwarz, & S. Pääbo, "Genomewide Comparison of DNA Sequences between Humans and Chimpanzees," *American Journal of Human Genetics* 70 (2002): 1490–1497.
- ¹⁹¹ Chimpanzee Sequencing and Analysis Consortium, "Initial Sequence of the Chimpanzee Genome and Comparison with the Human Genome," *Nature* 437 (2005): 69–87.
- ¹⁹² J. Tomkins, "Genome-Wide DNA Alignment Similarity (Identity) for 40,000 Chimpanzee DNA Sequences Queried against the Human Genome is 86–89%," *Answers Research Journal* 4 (2011): 233–241.
- ¹⁹³ J. Prado-Martinez, et al. "Great Ape Genetic Diversity and Population History," *Nature* 499 (2013), 471–475.

- ¹⁹⁴ J. Tomkins, & J. Bergman. "Genomic Monkey Business— Estimates of Nearly Identical Human-Chimp DNA Similarity Re-evaluated using Omitted Data," *Journal of Creation* 26 (2012), 94–100; J. Tomkins, "Comprehensive Analysis of Chimpanzee and Human Chromosomes Reveals Average DNA Similarity of 70%," *Answers Research Journal* 6 (2013): 63–69.
- 195 Tomkins & Bergman, 2013.
- ¹⁹⁶ Tomkins, 2011.
- ¹⁹⁷ Tomkins, 2013.
- ¹⁹⁸ Tomkins, 2011.
- ¹⁹⁹ E. Wijaya, M.C. Frith, P. Horton & K. Asai, "Finding Protein-coding Genes through Human Polymorphisms," *PloS one* 8 (2013).
- ²⁰⁰ M. J. Hangauer, I.W. Vaughn & M. T. McManus, "Pervasive Transcription of the Human Genome Produces Thousands of Previously Unidentified Long Intergenic Noncoding RNAs," *PLoS genetics* 9 (2013).
- ²⁰¹ S. Djebali, et al. "Landscape of Transcription in Human Cells," *Nature* 489 (2012): 101–108.
- ²⁰² M. D. Paraskevopoulou, et al. "DIANA-LncBase: Experimentally Verified and Computationally Predicted MicroRNA Targets on Long Non-coding RNAs," *Nucleic Acids Research* 41 (2013): 239–245.
- ²⁰³ G. Liu, J.S. Mattick, & R. J. Taft, "A Meta-analysis of the Genomic and Transcriptomic Composition of Complex Life," *Cell Cycle* 12 (2013), 2061–2072.
- ²⁰⁴ J. J Yunis & O. Prakash, "The Origin of Man: A Chromosomal Pictorial Legacy," *Science* 215 (1982): 1525–1530.
- ²⁰⁵ J. W. Ijdo, A. Baldini, D.C. Ward, S. T. Reeders & R. A. Wells, "Origin of Human Chromosome 2: An Ancestral Telomere-telomere Fusion," *Proceedings of the National Academy of Sciences of the United States of America* 88 (1991): 9051–9055.

- J. Bergman & J. Tomkins, "The Chromosome 2 Fusion Model of Human Evolution—Part 1: Re-evaluating the Evidence," *Journal of Creation* 25 (2011): 110–114.
- ²⁰⁷ J. Tomkins, "Alleged Human Chromosome 2 'Fusion Site' Encodes an Active DNA Binding Domain Inside a Complex and Highly Expressed Gene—Negating Fusion," *Answers Research Journal* 6 (2013): 367–375.
- Y. Fan, E. Linardopoulou, C. Friedman, E. Williams & B.J. Trask, "Genomic Structure and Evolution of the Ancestral Chromosome Fusion Site in 2q13-2q14.1 and Paralogous Regions on other Human Chromosomes," *Genome Research* 12 (2002): 1651–1662; Y. Fan, T. Newman, E. Linardopoulou, & B.J. Trask, "Gene Content and Function of the Ancestral Chromosome Fusion Site in Human Chromosome 2q13-2q14.1 and Paralogous Regions," *Genome Research* 12 (2002): 1663–1672.
- ²⁰⁹ Y.Z. Wen, L. L. Zheng, L.H. Qu, F. J. Ayala & Z.R. Lun, Z. R, "Pseudogenes are not Pseudo Any More," *RNA Biology* 9 (2012): 27–32.
- ²¹⁰ J. Tomkins, "The Human Beta-Globin Pseudogene Is Non-Variable and Functional," *Answers Research Journal* 6 (2013): 293–301.
- M. Y. Lachapelle, & G. Drouin, "Inactivation Dates of the Human and Guinea Pig Vitamin C Genes," *Genetica* 139 (2011): 199–207.
- ²¹² J. Sanford, *Genetic Entropy and the Mystery of the Genome*, 3rd ed. (FMS Publications, 2010).
- ²¹³ J. Tomkins & J. Bergman, "Incomplete Lineage Sorting and Other 'Rogue' Data Fell the Tree of Life," *Journal of Creation* 27 (2013): 63–71.
- P. Senter, "Vestigial Skeletal Structures in Dinosaurs," *Journal of Zoology*, 280 (1) (January 2010): 60–71.
- ²¹⁵ Thomas Heinze, *Creation vs. Evolution Handbook* (Grand Rapids, MI: Baker, 1973).

- ²¹⁶ Isaac Asimov, *1959 Words of Science* (New York: Signet Reference Books, 1959), 30.
- ²¹⁷ J. Bergman, "Are Wisdom Teeth (third molars) Vestiges of Human Evolution?" *CEN Tech Journal*. 12 (3) (1998): 297–304.
- ²¹⁸ Charles Darwin, *The Descent of Man and Selection in Relation to Sex* (London: John Murray, 1871), 21.
- ²¹⁹ Charles Darwin, *The Origin of Species* (New York: Modern Library, 1859), 346–350.
- ²²⁰ S. R. Scadding, "Do Vestigial Organs Provide Evidence for Evolution?" *Evolutionary Theory* 5 (1981): 173–176.
- ²²¹ Robert Wiedersheim, *The Structure of Man: An Index to his Past History* (London: Macmillan, 1895, Translated by H. and M. Bernard).
- ²²² David Starr Jordan & Vernon Lyman Kellogg, *Evolution and Animal Life* (New York: Appleton, 1908), 175.
- ²²³ Wiedersheim, 1895, p. 3.
- ²²⁴ Darwin, 1871, p. 29.
- ²²⁵ Cora A. Reno, *Evolution on Trial* (Chicago: Moody Press, 1970), 81.
- ²²⁶ Diane Newman, *The Urinary Incontinence Sourcebook* (Los Angeles, CA.: Lowell House, 1997), 13.
- ²²⁷ Warren Walker, Functional Anatomy of the Vertebrates: An Evolutionary Perspective (Philadelphia, PA: Saunders, 1987), 253.
- ²²⁸ Catherine Parker Anthony, *Textbook of Anatomy and Physiology*, 6th ed. (St. Louis, MO: Mosby, 1963), 411.
- ²²⁹ Anthony Smith, *The Body* (New York: Viking Penguin, 1986), 134.
- ²³⁰ Henry Gray, *Gray's Anatomy* (Philadelphia: Lea Febiger, 1966), 130.
- ²³¹ Dorothy Allford, *Instant Creation—Not Evolution* (New York: Stein and Day, 1978), 42; Saul Weischnitzer, *Outline of Human Anatomy* (Baltimore, MD: University Park Press, 1978), 285.

- ²³² J. D. Ratcliff, *Your Body and How it Works* (New York: Delacorte Press, 1975), 137.
- ²³³ Lawrence Galton, "All those Tonsil Operations: Useless? Dangerous?" *Parade* (May 2, 1976): 26.
- ²³⁴ Martin L. Gross, *The Doctors* (New York: Random House, 1966).
- ²³⁵ Jacob Stanley, Clarice Francone, & Walter Lossow, *Structure and Function in Man*, 5th ed. (Philadelphia: Saunders, 1982).
- ²³⁶ Alvin Eden, "When Should Tonsils and Adenoids be Removed?" *Family Weekly* (September 25, 1977): 24.
- ²³⁷ Syzmanowski as quoted in Dolores Katz, "Tonsillectomy: Boom or Boondoggle?" *The Detroit Free Press* (April 13, 1966).
- ²³⁸ Katz, 1972, p. 1-C.
- ²³⁹ N. J. Vianna, Petter Greenwald & U. N. Davies, "Tonsillectomy" In: *Medical World News* (September 10, 1973).
- ²⁴⁰ Katz, 1972.
- ²⁴¹ Darwin, 1871, pp. 27–28.
- ²⁴² Peter Raven & George Johnson, *Understanding Biology* (St. Louis: Times Mirror Mosby, 1988), 322.
- ²⁴³ Rebecca E. Fisher, "The Primate Appendix: A Reassessment," *The Anatomical Record*, 261 (2000): 228–236.
- ²⁴⁴ R. Randal Bollinger, Andrew S. Barbas, Errol L. Bush, Shu S. Lin and William Parker, "Biofilms in the Large Bowel Suggest an Apparent Function of the Human Vermiform Appendix," *Journal of Theoretical Biology*, 249 (4) (2007): 826–831; Thomas Morrison (ed.). *Human Physiology* (New York: Holt, Rinehart, and Winston, 1967).
- ²⁴⁵ Loren Martin, "What is the Function of the Human Appendix?" *Scientific American Online* (1999).

- ²⁴⁶ Thomas Judge & Gary R. Lichtenstein, "Is the Appendix a Vestigial Organ? Its Role in Ulcerative Colitis," *Gastroenterology*, 121 (3) (2001): 730–732.
- ²⁴⁷ Rod R. Seeley, Trent D. Stephens, & Philip Tate, *Anatomy and Physiology* (Boston: McGraw-Hill, 2003).
- ²⁴⁸ Ernst Haeckel, *The Evolution of Man: A Popular Exposition of the Principal Points of Human Ontogeny and Phylogeny* (New York: D. Appleton, 1879), 438.
- ²⁴⁹ Wiedersheim, 1895, p. 163.
- O. Levy, G. Dai, C. Riedel, C.S. Ginter, E.M. Paul, A. N. Lebowitz & N. Carrasco, "Characterization of the thyroid Na+/I- symporter with an anti-COOH terminus antibody," *Proceedings from the National Academy of Science*, 94 (1997): 5568–5573.
- ²⁵¹ Albert Maisel, "The useless glands that guard our health." *Reader's Digest* (November, 1966): 229–235.
- ²⁵² John Clayton, "Vestigial Organs Continue to Diminish," *Focus on Truth*, 6 (6) (1983): 6–7.
- ²⁵³ Seeley, Stephens, & Tate, *Anatomy and Physiology* (McGraw-Hill Education, 2003), 778.
- ²⁵⁴ Maisel, 1966, p. 229.
- ²⁵⁵ Arthur Guyton, *Textbook of Medical Physiology* (Philadelphia: W. B. Saunders, 1966): 139.
- ²⁵⁶ Helen G. Durkin & Byron H. Waksman. "Thymus and Tolerance. Is Regulation the Major Function of the Thymus?" *Immunological Reviews*, 182 (2001): 33–57.
- ²⁵⁷ Durkin & Waksman, 2001, p. 49.
- ²⁵⁸ Benedict Seddon & Don Mason, "The Third Function of the Thymus," *Immunology Today*, 21 (2) (2000): 95–99.
- ²⁵⁹ Maisel, 1966.
- ²⁶⁰ Joel R. L. Ehrenkranz, "A Gland for all Seasons," *Natural History*, 92 (6) (1983): 18.
- ²⁶¹ Stanley Yolles, "The Pineal Gland," *Today's Health*, 44 (3) (1966): 76–79.

- ²⁶² David Blask, "Potential Role of the Pineal Gland in the Human Menstrual Cycle," Chapter 9 in *Changing Perspectives on Menopause*, Edited by A. M. Voda (Austin: University of Texas Press, 1982), 124.
- ²⁶³ A. C. Greiner & S. C. Chan, "Melatonin Content of the Human Pineal Gland," *Science*, 199 (1978): 83–84.
- ²⁶⁴ Esther Greisheimer & Mary Wideman, *Physiology and Anatomy*, 9th ed. (Philadelphia: Lippincott, 1972).
- ²⁶⁵ Rosa M. Sainz, Juan C. Mayo, R.J. Reiter, D.X. Tan, and C. Rodriguez, "Apoptosis in Primary Lymphoid Organs with Aging," *Microscopy Research and Technique*, 62 (2003): 524–539.
- ²⁶⁶ Sharon Begley & William Cook, "The SAD Days of Winter," *Newsweek*, 155 (2) (January 14, 1985): 64.
- ²⁶⁷ Sainz, et al., 2003.
- ²⁶⁸ G.J. Maestroni, A. Conti, & P. Lisson, "Colony-stimulating activity and hematopoietic rescue from cancer chemotherapy compounds are induced by melatonin via endogenous interleukin," *Cancer Research*, 54 (1994): 4740-4743.
- ²⁶⁹ B.D. Jankovic, K. Isakovic, S. Petrovic, "Effect of Pinealectomy on Immune Reactions in the Rat," *Immunology*, 18 (1) (1970): 1–6.
- ²⁷⁰ Lennert Wetterberg, Edward Geller, & Arthur Yuwiler, "Harderian Gland: An Extraretinal Photoreceptor Influencing the Pineal Gland in Neonatal Rats?" *Science*, 167 (1970): 884–885.
- ²⁷¹ Ehrenkranz, 1983, p. 18.
- ²⁷² Philip Stibbe, "A Comparative Study of the Nictitating Membrane of Birds and Mammals," *Journal of Anatomy*, 163 (1928): 159–176.
- ²⁷³ Darwin, 1871, p. 23.
- ²⁷⁴ Henry Drummond, *The Ascent of Man* (New York: James Potts and Co., 1903).

- ²⁷⁵ Richard Snell & Michael Lemp, *Clinical Anatomy of the Eye* (Boston: Blackwell Scientific Pub, 1997), 93.
- ²⁷⁶ Eugene Wolff (Revised by Robert Warwick), *Anatomy of the Eye and Orbit* 7th ed. (Philadelphia: W B. Saunders, 1976), 221.
- ²⁷⁷ John King, Personal communication, Dr. King is a professor of ophthalmology at The Ohio State School of Medicine and an authority on the eye (October 18, 1979).
- ²⁷⁸ E. P. Stibbe, "A Comparative Study of the Nictitating Membrane of Birds and Mammals," *Journal of Anatomy* 62 (1928): 159–176.
- ²⁷⁹ Wiedersheim, 1895.
- ²⁸⁰ D. Peck, "A Proposed Mechanoreceptor Role for the Small Redundant Muscles which Act in Parallel with Large Prime movers" in P. Hinick, T. Soukup, R. Vejsada, & J. Zelena's (eds.) *Mechanoreceptors: Development, Structure and Function* (New York: Plenum Press, 1988), 377–382.
- ²⁸¹ David N. Menton, "The Plantaris and the Question of Vestigial Muscles in Man," *CEN Technical Journal*, 14 (2) (2000): 50–53.
- ²⁸² Herbert DeVries, *Physiology of Exercise for Physical Education and Athletics* (Dubuque, IA: William C. Brown, 1980), 16–18.